Volunteer Lake Assessment Program Individual Lake Reports

BROAD BAY, OSSIPEE, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	224,432	**Max. Depth (m):**	22.3	**Flushing Rate (yr^{-1})**	34.1
Surface Area (Ac.):	464	**Mean Depth (m):**	8.3	**P Retention Coef:**	0.04
Shore Length (m):	10,600	**Volume (m^3):**	15,573,500	**Elevation (ft):**	406

TROPHIC CLASSIFICATION

Year	Trophic class
1987	OLIGOTROPHIC
2003	OLIGOTROPHIC

KNOWN EXOTIC SPECIES

Variable Milfoil

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

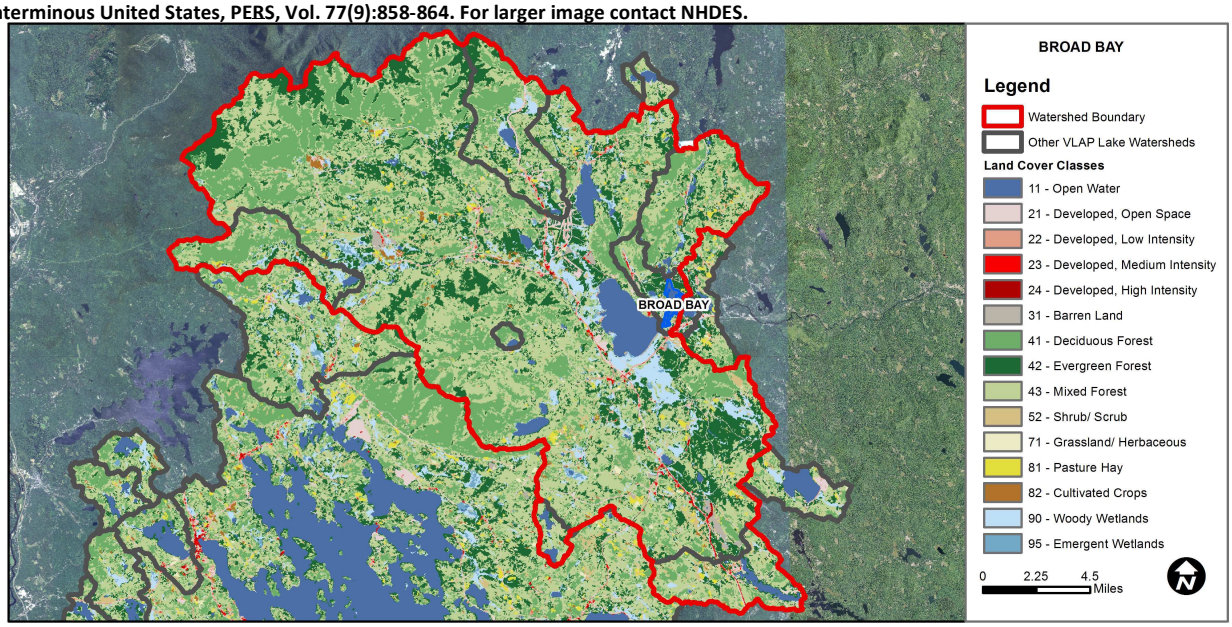
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	D.O. (mg/L)	Very Good	At least 10 samples with 0 exceedances of criteria.
	D.O. (% sat)	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Chlorophyll-a	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	No Data	No Data for this parameter.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

BROAD BAY - CAMP ROBIN HOOD BEACH	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.
BROAD BAY - CAMP HUCKINS BEACH	E. coli	Encouraging	>2 samples exist that are > 75% of geometric mean criteria, but not enough samples to calculate geomertic mean. No single sample exceedances. More data needed.
LEAVITT BAY - CAMP MARIST BEACH	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



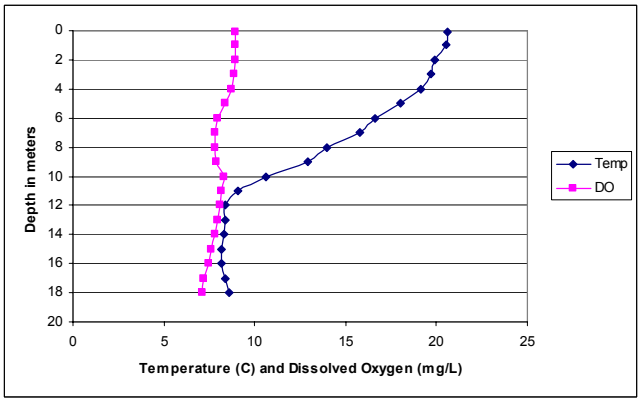
Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	3.56	Barren Land	0.64	Grassland/Herbaceous	0.36
Developed-Open Space	2.91	Deciduous Forest	23.33	Pasture Hay	0.85
Developed-Low Intensity	0.74	Evergreen Forest	20.37	Cultivated Crops	0.5
Developed-Medium Intensity	0.24	Mixed Forest	38.49	Woody Wetlands	4.63
Developed-High Intensity	0.04	Shrub-Scrub	2.67	Emergent Wetlands	0.6

VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
BROAD BAY, OSSIPEE, NH
2012 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphic)*

- **CHLOROPHYLL-A:** Chlorophyll levels were relatively low and less than the NH lake median. Historical trend analysis indicates a relatively stable chlorophyll level since monitoring began.
- **CONDUCTIVITY/CHLORIDE:** Deep spot conductivity and chloride were average for most NH lakes.
- **TOTAL PHOSPHORUS:** Epilimnetic (upper layer) phosphorus levels were elevated and the highest measured since monitoring began. Historical trend analysis indicates a significantly increasing (worsening) epilimnetic phosphorus level.
- **TRANSPARENCY:** Average transparency decreased from levels measured in 2010 and 2011. Historical trend analysis indicates a significantly decreasing (worsening) lake transparency since monitoring began.
- **TURBIDITY:** Deep spot turbidity was relatively low in 2012.
- **PH:** Epilimnetic pH levels were sufficient to support aquatic life, however pH decreased to undesirable levels in the metalimnion (middle water layer) and hypolimnion (lower water layer).
- **RECOMMENDED ACTIONS:** Collect monthly water quality data (June, July, August), phytoplankton hauls and dissolved oxygen and temperature profiles. Worsening trends in phosphorus and transparency indicate potential pollution from stormwater runoff. Educate watershed residents on ways to reduce stormwater runoff from their properties. Utilize the "NH Homeowner's Guide to Stormwater Management" to assist with stormwater managment efforts.

Dissolved Oxygen & Temperature Profile



Broad Bay Phytoplankton Population

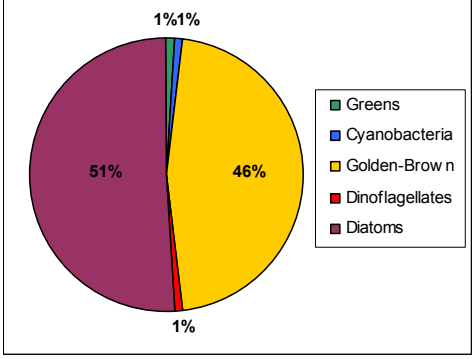


Table 1. 2012 Average Water Quality Data for BROAD BAY

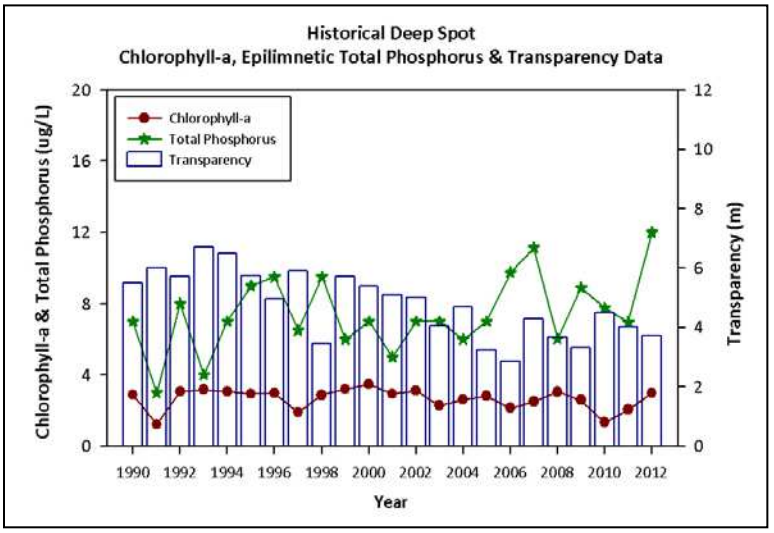
Station Name	Alk.	Chlor-a	Chloride	Cond.	Total P	Trans.		Turb.	pH
	mg/l	ug/l	mg/l	uS/cm	ug/l	m		ntu	
						NVS	VS		
Deep Epilimnion	2.7	2.98	4	36.0	12	3.72	4.00	0.75	6.69
Deep Metalimnion				34.3	7			0.62	6.38
DeepHypolimnion				41.2	6			0.45	6.27

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	Stable	Data not significantly increasing or decreasing.
Transparency	Degrading	Data significantly decreasing (worsening).
Phosphorus (epilimnion)	Degrading	Data significantly increasing (worsening).



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